

Testimony of Mr. David Howell, Acting Director and Principal Deputy Director

Office of Manufacturing and Energy Supply Chains (MESC)

U.S. Department of Energy

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Introduction

The U.S. Department of Energy’s Office of Manufacturing and Energy Supply Chains (MESC) is responsible for strengthening and securing manufacturing and energy supply chains needed to modernize the nation’s energy infrastructure and support a clean and equitable energy transition.

Established in 2022 as a new office reporting to the Under Secretary for Infrastructure, MESC aims to support scale-up and deployment of the nation’s manufacturing capacity through programs that are focused on establishing critical domestic supply chains and increasing circularity, reducing industrial base carbon emissions through manufacturing facility upgrades, developing energy workforce capabilities and resources, and leveraging private sector investment. MESC also works to bolster small and medium enterprises and communities in energy transition.

With funds and authorities provided by the Bipartisan Infrastructure Law, the Inflation Reduction Act, and the Defense Production Act, MESC supports \$20 billion in programs that further these goals. In addition, MESC is partnering, on behalf of the Department of Energy (DOE), with the U.S. Department of Treasury and the Internal Revenue Service to support the Qualifying Advanced Energy Project Credit (48C) Program.

MESC’s work will help DOE ensure that America is positioned to lead the world in manufacturing the energy products of the future.

MESC Overview and Programs

MESC is strengthening energy supply chains through three key areas of effort: Batteries and Critical Materials; Facilities and Workforce; and the Energy Sector Industrial Base.

Batteries & Critical Materials: This area of effort focuses on the demonstration and deployment of new domestic manufacturing capacity for batteries, critical materials, and

recycling. Critical materials are those needed for batteries and clean energy technologies such as rare-earths, platinum group metals, and other materials deemed critical by DOE¹ and the U.S. Geological Survey². Work supports scale-up and deployment of battery supply chain capacity by:

- Developing a domestic battery manufacturing supply chain;
- Accelerating critical minerals and materials processing and key battery material component manufacturing; and
- Establishing an ecosystem for critical materials recycling and reuse.

Key Programs:

- **\$3 billion for Battery Manufacturing and Recycling Grants.** The Bipartisan Infrastructure Law (BIL) directs DOE to provide competitive cost-shared grants aimed at building, retooling, or expanding manufacturing of batteries and battery components (such as cathodes, anodes, and electrolytes) and establishing recycling facilities to ensure that the United States has a viable domestic manufacturing and recycling capability to support a North American battery supply chain.
- **\$3 billion for Battery Material Processing Grants.** The processing of battery materials is an economic vulnerability for the United States, as China is currently responsible for the refining and processing of 80-90% of rare earth elements and 60-70% of lithium and cobalt.³ Through the Bipartisan Infrastructure Law, DOE will provide competitive grants for battery materials refining and processing to ensure that the United States has a viable battery materials processing industry.
- **\$140 million for the Rare Earth Elements Demonstration Facility Program.** The BIL established this program to demonstrate the feasibility of a full-scale integrated rare earth element extraction and separation facility and refinery, focusing in particular on feedstocks derived from mine waste and drainage. If successful, these demonstrations will convert mine waste and tailings into a source of critical minerals needed to strengthen strategic U.S. supply chains.
- **\$65 million for Battery and Critical Material Recycling - Retailers as Collection Points, and State and Local Programs.** To encourage consumers to recycle batteries and battery-containing devices, lower the cost of recycling batteries, and create additional collection sites for batteries, the BIL established a program to encourage retailers as collection points and to create or expand state and local recycling programs.

Facilities & Workforce Assistance: This area focuses on strengthening domestic manufacturing to improve efficiency, reduce emissions, and develop a high-skilled and equitable workforce

¹ DOE's draft critical materials for energy list: <https://www.energy.gov/cmm/what-are-critical-materials-and-critical-minerals>

² <https://www.federalregister.gov/documents/2022/02/24/2022-04027/2022-final-list-of-critical-minerals>

³ <https://www.iea.org/reports/energy-technology-perspectives-2023/clean-energy-supply-chains-vulnerabilities>

with an emphasis on assisting small- and medium-sized enterprises who produce clean energy technology.

Activities focus on expanding U.S. manufacturing and domestic supply chains by:

- Upgrading existing manufacturing facilities;
- Building or expanding small- and medium-sized enterprises in coal communities;
- Training the next generation of skilled energy professionals;
- Expanding industrial assessment centers (IACs);
- Collaborating with partner agencies, such as the National Institute of Standards and Technology's Hollings Manufacturing Extension Partnership (NIST MEP) Program, to help integrate and deploy DOE's programs for U.S. small- and medium-sized manufacturers; and
- Developing strategies to support the deployment of decarbonization and energy efficiency in industrial facilities.

Key Programs:

- **\$750 million for the Advanced Energy Manufacturing & Recycling Grant Program.** This program is designed to provide grants to small- and medium-sized manufacturers to enable them to build new or retrofit existing manufacturing and industrial facilities to produce or recycle advanced energy products – property used to support clean energy supply chains (such as those for clean electricity, fuels, or transportation) – in communities where coal mines or coal power plants have closed.
- **\$50 million for the State Manufacturing Leadership Program.** Widespread deployment of smart manufacturing is key to securing America's global leadership in manufacturing in the coming decades. The State Manufacturing Leadership Program will help states provide technical assistance to ensure that smart manufacturing technologies and high-performance computing are more accessible to small and medium domestic manufacturers.
- **\$550 million to expand the Industrial Assessments Centers Program.** DOE's IAC Program has been in operation since 1976. IACs provide small- and medium-sized manufacturers with site-specific recommendations for improving energy efficiency, reducing waste, and increasing productivity through changes in processes and equipment. BIL provides \$150 million to expand the IAC program to include new resources and adds \$400 million in Implementation Grants for IACs, which will fund upgrades for small- and medium-sized manufacturers that have been recommended in an assessment from an IAC or Combined Heat and Power Technical Assistance Partnership.

Energy Sector Industrial Base: MESC is collaborating across the Department to establish world class energy sector industrial base mapping, modeling, and analysis tools. DOE defines the Energy Sector Industrial Base holistically to represent the energy sector and associated supply chains that include all industries, companies, and stakeholders directly and indirectly involved in the energy sector. This work focuses on supporting the scale-up and deployment of new

manufacturing capacity and analysis of critical components, devices, and systems for the energy sector.

Key Programs:

- **\$2 billion for Domestic Manufacturing Conversion Grants for electrified vehicles.** This program provides cost-shared grants supporting the transition of existing manufacturing plants to support domestic production of efficient hybrid, plug-in electric hybrid, plug-in electric drive, and hydrogen fuel cell electric vehicle components.
- **\$250 million to Accelerate Electric Heat Pump Manufacturing in America utilizing the Defense Production Act.** This program, funded by the Inflation Reduction Act (IRA), will increase use of electric heat pumps, which provide both heating and cooling for buildings and homes, will help lower energy costs for more American families and businesses, and create healthier indoor spaces through American-made clean energy technologies.
- **\$20 million in Rebates for Energy Efficient Transformers and Extended Product Systems**
 - The Energy Efficient Transformer Rebates Program (\$10 million) will provide rebates to industrial or manufacturing facility owners, commercial building owners, multifamily building owners, utilities, or energy service companies for the replacement of a qualified energy inefficient transformer with a qualified energy efficient transformer.
 - The Extended Product Systems Rebates Program (\$10 million) will provide rebates for qualified product systems (i.e., electric motor, electronic control, and driven load).

48C Tax Credit. DOE is partnering with the U.S. Department of Treasury and the Internal Revenue Service to support the Qualifying Advanced Energy Project Credit (48C) Program. MESC is serving as the lead DOE agent for this partnership to implement the IRA's \$10 billion 48C tax credit. The 48C tax credit, first established in the 2009 American Reinvestment and Recovery Act, provides a tax credit of up to 30% for investments in advanced energy projects.

Progress in Implementation

In February, DOE celebrated the one-year anniversary of our strategic departmental realignment, which created the new Under Secretary for Infrastructure and three new offices, including the Office of Manufacturing and Energy Supply Chains. This new structure maximizes the effectiveness of BIL and IRA programs and boost DOE's ongoing work to reduce energy costs through low-cost clean energy resources, stimulate American manufacturing and industrial competitiveness and create jobs, increase equity and environmental justice, and support meeting ambitious climate goals.

The strategic realignment is allowing the Department to be nimbler and more responsive in its implementation of the BIL and IRA, and to meet the challenges of implementing these historic pieces of legislation. In addition, these structural changes set DOE up for success in carrying out all of our missions – and to carry them forward for the coming years and decades. The energy transition, which is already well underway, creates a huge opportunity to lower energy costs for American families, boost American manufacturing competitiveness, and maximize community benefits of new energy projects, especially in disadvantaged communities and those that have historically relied on the fossil fuel industry.

To seize this opportunity requires active engagement with the private sector and communities as we deploy and oversee this unprecedented level of Federal clean energy investment, including in some areas and types of activities that are new to the Department. Our strategic realignment optimizes the world-class expertise of our talented staff and maximizes our ability to bring in new talent and skillsets that will serve the American public for decades to come.

MESC is developing frameworks to administer the various programs it is responsible for through resources made available by the various laws the office supports. In October of 2022, MESC announced selections under the *Battery Materials Processing and Battery Manufacturing & Recycling* Funding Opportunity Announcement (FOA). The first of these selections was finalized last month with an award of \$75 million to Cirba, which will use DOE funds to expand and upgrade critical assets at its lithium-ion processing and recycling facility in Lancaster, Ohio. At full operation, the Lancaster facility will be one of the largest commercial-scale recycling facilities in North America, producing enough battery-grade critical minerals to power more than 200,000 new electric vehicles annually. The capability to recycle lithium-ion batteries is imperative for the U.S. to develop a sustainable domestic supply chain for the electric vehicle market, as well as to build a stable infrastructure for an electric future. DOE anticipates that several more selections from the *Battery Materials Processing and Battery Manufacturing & Recycling* FOA will advance to final award over the next month. The Department is preparing to make announcements regarding a second tranche of the battery manufacturing and recycling funding later this year.

In February, the first funding opportunity for \$350 million (announced on February 13, 2023) from the Bipartisan Infrastructure Law's *Advanced Energy Manufacturing and Recycling Grant Program* opened for applications. This program will provide grants to small- and medium-sized manufacturers to enable them to build new or retrofit existing manufacturing and industrial facilities to produce or recycle advanced energy technologies – like clean electricity, fuels, or transportation – in communities where coal mines or coal power plants have closed. The deadline for full applications was June 8. Each application will be given an impartial review and full consideration. The Department anticipates announcing selections under this opportunity in the fourth quarter of 2023.

On March 31, MESC announced \$50 million in available funding under the *State Manufacturing Leadership Program*. This FOA closed at the end of May, and MESC is working to review

applications. The Department anticipates announcing selections under this opportunity in the third quarter of 2023.

On April 4, MESC and the Office of Fossil Energy and Carbon Management announced that the University of North Dakota and West Virginia University have been selected for negotiation for \$16 million in funding through the Rare Earth Elements Demonstration Facility competition. These funds will support design studies for the first-ever full-scale domestic demonstration refinery that will extract and separate rare earth elements and other critical minerals from coal ash, acid mine drainage, and other mine waste.

On April 7, we announced the selection of five higher education institutions to serve as new Centers of Excellence under the IAC program, to receive a combined \$18.7 million in funds provided under the BIL. The new Regional Centers of Excellence will enhance and expand the IAC Program by serving as regional hubs for the program that collaborate and coordinate with government, nonprofit, labor, and industry actors to train clean energy workers and support small- and medium-sized manufacturers in each respective region.

On April 7, MESC and the Office of State and Community Energy Programs opened a \$54 million funding opportunity to expand the IAC Program to community colleges, trade schools, and union training programs and to create new Building Training and Assessment Centers (BTACs) at higher education institutions. The IAC program is managed by MESC and the BTAC program is managed by the Office of State and Community Energy Programs. Concept papers are due June 16.

On April 18, MESC opened a \$250 million funding opportunity to accelerate domestic heat pump manufacturing and deployment under the Defense Production Act authorized by President Biden and funded by the IRA.⁴ This FOA closes on August 1, 2023. The Department anticipates announcing selections under this opportunity in the fourth quarter of 2023.

On May 31, DOE and the Department of Treasury released new guidance on the types of projects that qualify for the IRA-funded Advanced Energy Project 48C tax credit and made the first \$4 billion in funding available to applicants. Approximately \$1.6 billion will be set aside for projects in designated energy communities with closed coal plants or mines. In addition, MESC will aim to leverage credit allocations in the first round to recommend projects that support a diverse portfolio of investments, including in the small- and medium-sized manufacturers that form the backbone of local and regional economies and supply chains. Concept papers are due July 31 at 12:00 pm ET. The IRS will notify applicants of final allocation decisions for round one no later than March 31, 2024.

On June 7, DOE announced up to \$80 million in grant funding from the Bipartisan Infrastructure Law for small- and medium-sized manufacturing firms to accelerate the adoption of recommendations made by DOE to improve energy efficiency to lower costs and reduce

⁴ [Biden-Harris Administration Announces \\$250 Million to Accelerate Electric Heat Pump Manufacturing Across America | Department of Energy](#)

industrial emissions. These grants will bolster the U.S. manufacturing base by making grants available to support projects that modernize small- and medium-sized manufacturing facilities with improved energy and material efficiency, enhanced cybersecurity, and increased use of smart and advanced manufacturing technologies to reduce waste and pollution, while increasing productivity.

Program Oversight and Mitigating Risks

Given the scope and magnitude of our responsibility in implementing the Bipartisan Infrastructure Law and the Inflation Reduction Act, it is critical for MESC to conduct stringent oversight of program designs and rollouts. This will protect the taxpayers' investment, and keep program operations running efficiently to ensure that our provisions and initiatives are launched in a timely manner. In order to take advantage of the extraordinary expertise across DOE, reduce redundancies and learn lessons from past experiences, our infrastructure team has developed a system of intra-departmental coordination for project and program design, in which staff from across program offices review and provide feedback on programs that are in the development phase. In addition to core project and program oversight responsibilities, such as hiring dozens of project and program oversight specialists, contracting officers, and budget oversight staff to responsibly oversee the tremendous investment Congress has made, DOE is institutionalizing oversight of large, complex, potentially higher-upside projects.

DOE takes the risk of undue foreign influence especially seriously. Accordingly, we have recently implemented a comprehensive and rigorous approach to research, technology, and economic security (RTES) policy and procedures for DOE awards and loans. DOE has developed, and continues to improve, a number of RTES measures to mitigate risk malign foreign governments pose to our scientific and technological development ecosystem, U.S. supply chains, and intellectual property. In 2022, DOE established a Department-wide RTES working group to develop and assist in the implementation of RTES policies. Second, the Department established a new RTES vetting process that will support programs in due diligence reviews and risk mitigation to ensure our national security, economic competitiveness, and technological leadership imperatives are duly incorporated in our financial assistance and loan activities. The RTES vetting team is actively working towards a centralized and risk-based approach to identify and address RTES concerns across the breadth of DOE programs. A standardized RTES policy and process for financial assistance and loans will help ensure that MESC can increase efficiency and stay focused on our mission.

In general, DOE requires entities and project participants (individuals) to identify various sources of support, including foreign support. DOE carefully scrutinizes the foreign support to determine to what extent the support could result in undue foreign influence. If high risks are identified and cannot be sufficiently mitigated, DOE may elect to not fund a project. DOE recognizes it must continue to evolve its approach because foreign competitor nations may attempt to conceal their participation to make it difficult to identify. Should DOE's oversight mechanisms uncover direct or indirect support the Chinese Communist Party, MESC will work with the Department's RTES experts to evaluate the circumstances to determine the appropriate action.

It is not uncommon that entities selected under a competitive funding opportunity do not ultimately receive an award. Sometimes applicants are unable or unwilling to meet the Department's rigorous oversight standards or to satisfy conditions that the Department may ask to apply in the financial assistance agreement. Other times, applicants may withdraw due to their own internal considerations. Further, the Special Terms and Conditions that MESC includes in its agreements with awardees declare that during the life of the award, DOE may conduct ongoing due diligence reviews, using Government resources, to identify potential risks of undue foreign influence. In the event that a risk is identified, DOE may require targeted risk mitigation measures. Such measures include, but are not limited to, prohibiting an individual or entity from participating in the award.

In addition, the Office of the Under Secretary for Infrastructure, which oversees MESC, has been engaging from day one and will continue to routinely engage with the Office of Inspector General (OIG) to mitigate risks in the programs under its purview. The Department's OIG plays a critical oversight function in ensuring that new programs mitigate the risk of fraud, waste, and abuse. The OIG has coordinated with Department leadership to review spending plans and has recommended prospective actions that DOE and its program offices can take to best protect taxpayer dollars and program integrity. The OIG will also continue to engage in periodic performance reviews and audits while also responding to complaints and tips on behalf of DOE employees and the general public.

Beginning in January 2022, the Office of the Under Secretary for Infrastructure began engaging with the OIG to better understand how DOE could proactively improve its oversight of BIL funding. Over the past 16 months, the Office of the Under Secretary has coordinated 30 meetings with the OIG and DOE program officials to discuss BIL program design plans and implementation activities. These meetings are designed to provide the opportunity for an engaged, open, and transparent conversation about program design, risk mitigation strategies, financial controls, data, and tracking, as well as oversight strategies, best practices, and lessons learned. Topics have ranged from DOE's approach to Build America, Buy America requirements, to how specific BIL provisions are being implemented. These meetings have provided DOE leaders the opportunity to share with the OIG critical process improvements the Department has made over the last decade across multiple program offices to strengthen protections and mitigate risks associated with financial assistance programs and have helped DOE leaders gain insights and better understand what trends the OIG is seeing with respect to recent investigations and reports.

One key recommendation from the Inspector General relates to adequately staffing the Department to provide critical oversight of funded programs and projects. Accordingly, MESC has been focused on hiring sufficient staff from day one, particularly on hiring project and program oversight specialists, grant management and contracting specialists, and financial and audit oversight staff to responsibly oversee our programs.

Conclusion

As MESC continues our implementation of investments provided by Congress, we will remain steadfast in our commitment to be responsible stewards of taxpayer dollars, to implement our programs in accordance with the law and Congressional intent, and take the proactive steps necessary to prevent fraud, waste, and abuse in our programs. On behalf of the Department, I appreciate the Subcommittee's interest and the opportunity to provide testimony.